

Moisture, Clouds, Precipitation Exam CP

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RH = Relative Humidity

(1-6) Identify each phase change process. Please double check your spelling for the phase change process name. Type answers in the following format: all lower case. **CHECK SPELLING!**

Word Bank: **Sublimation, Evaporation, Melting, Freezing, Deposition, Condensation**

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|-------------------------------|-------------------------------|
| 1. Solid \Rightarrow Liquid | 4. Gas \Rightarrow Solid |
| 2. Gas \Rightarrow Liquid | 5. Liquid \Rightarrow Solid |
| 3. Solid \Rightarrow Gas | 6. Liquid \Rightarrow Gas |
7. In an environment with low humidity, what observation would someone likely make regarding a sling psychrometer?
- a. no difference between wet and dry bulb temperatures
 - b. small difference between wet and dry bulb temperatures
 - c. large difference between wet and dry bulb temperatures
 - d. both wet and dry bulb temperatures around 0°C
8. Which factor(s) affect relative humidity?
- a. temperature
 - b. humidity
 - c. condensation nuclei
 - d. concentration on N₂ and O₂
 - e. all of the above
 - f. a and b only
9. If the amount of water vapor in an air parcel stays the same, but air temperature decreases, what happens to the relative humidity?
- a. nothing
 - b. increases
 - c. decreases
 - d. becomes zero
10. What does it mean when we say the air is saturated?
- a. 100% RH
 - b. 50% RH
 - c. 25% RH
 - d. 0% RH
11. What happens to a parcel of air if it ascends (rises into the atmosphere)?
- a. is compressed and heats
 - b. expands and cools
 - c. is compressed, and cools
 - d. expands and heats
12. Describe what happens to a parcel of air if it descends.
- a. is compressed and heats
 - b. expands and cools
 - c. is compressed, and cools
 - d. expands and heats
13. Which lifting mechanism involves physical features of Earth's surface?
- a. frontal wedging
 - b. convergence
 - c. orographic lifting
 - d. localized convective lifting

- 14.** The total amount of water vapor in the atmosphere (by volume) usually does not exceed _____.
a. 50%
b. 28%
c. 14%
d. 4%
- 15.** A cloud is best described as:
a. A concentration of gasses such as Oxygen and Water Vapor
b. Smoke
c. A concentration of water droplets and ice crystals
d. Steam
e. A concentration of evaporated water droplets
f. Dew
- 16.** Clouds form mainly as a result of:
a. rising air
b. cooling air
c. increase in relative humidity
d. increase in humidity
e. all of the above
- 17.** What must condition must be present to allow condensation to occur?
a. RH = 100%
b. unsaturated air
c. RH = 50%
d. warm air
- 18.** Clouds are named according to their...
a. composition and altitude
b. altitude and appearance
c. longevity and composition
d. appearance and composition
- 19.** Which is the largest cloud in terms of vertical development?
a. cumulus
b. stratocumulus
c. altocumulus
d. cumulonimbus
- 20.** If the condensation level = 2000m, and an air parcel's surface temperature = 20°C, what would the temperature of the air parcel be at 4km given that the Dry Adiabatic Lapse Rate = 10°C and the Wet Adiabatic Lapse Rate = 5°C? (Hint: draw diagram on scrap paper)
a. 0°C
b. 10°C
c. -10°C
d. -20°C
e. -5°C
- 21.** Localized Convective Lifting requires...
a. similar air masses
b. a warm surface
c. a physical feature
d. different air masses

22. What can serve as condensation nuclei?

- a. salt
- b. dust
- c. smoke
- d. pollution
- e. all of the above

23. Which type of cloud is primarily composed of ice crystals?

- a. cirrus
- b. stratus
- c. cumulus
- d. cumulonimbus

24. True/False: Fog is a type of cloud which can form when air cools to the dew point or becomes saturated.

25. Which of the following forms when supercooled raindrops freeze on contact with solid objects near Earth's surface?

- a. freezing rain
- b. hail
- c. sleet
- d. snow